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PRODUCT SPECIFICATION

.093 SERIES PLUG AND RECEPTACLE POWER CONNECTORS

1.0 SCOPE

This Product Specification covers the 5.03 mm (.198 inch) centerline connector series using pin and socket terminals terminated with 14 to 24 AWG wire using crimp technology with tin plating.

2.0 PRODUCT DESCRIPTION

2.1 PRODUCT NAME AND SERIES NUMBER(S)

PRODUCT NAME	SERIES NUMBER
Plug Housing, 1-circuit	1619-1P
Receptacle Housing, 1-circuit	1619-1R
Plug Housing, 2-circuit	1545-P*
Receptacle Housing, 2-circuit	1545-R*
Plug Housing, 3-circuit	1396-P*
Receptacle Housing, 3-circuit	1396-R*
Plug Housing, 4-circuit (in-line)	1490-P*
Receptacle Housing, 4-circuit (in-line)	1490-R*
Plug Housing, 4-circuit (2 x 2)	2163-P*
Receptacle Housing, 4-circuit (2 x 2)	2163-R*
Plug Housing, 5-circuit	1653-P*
Receptacle Housing, 5-circuit	1653-R*
Plug Housing, 6-circuit	1261-P*
Receptacle Housing, 6-circuit	1261-R*
Plug Housing, 9-circuit	1292-P*
Receptacle Housing, 9-circuit	1292-R*
Plug Housing, 12-circuit	1360-P*
Receptacle Housing, 12-circuit	1360-R*
Socket Terminal, 14-18 AWG	1189
Pin Terminal, 14-18 AWG	1190
Socket Terminal, 18-22 AWG	1380
Pin Terminal, 18-22 AWG	1381
Socket Terminal, 22-24 AWG	2870
Pin Terminal, 22-24 AWG	2871
Socket Terminal, 14-18 AWG, (P-B)	4550
Socket Terminal, 18-22 AWG, (P-B)	2151

2.2 DIMENSIONS, MATERIALS, PLATINGS AND MARKINGS

Housings are molded of UL 94V-2 rated PA66.
Terminals are tin-plated brass or phosphor-bronze.
See appropriate sales drawings for additional information on dimensions, materials, platings and markings.

2.3 SAFETY AGENCY APPROVALS

UL File #E29179
CSA File #E29179
TUV License #R75107

3.0 APPLICABLE DOCUMENTS AND SPECIFICATIONS

See the appropriate sales drawings for necessary referenced documents and specifications.

4.0 RATINGS

4.1 VOLTAGE

250 Volts AC (RMS)

4.2 CURRENT AND APPLICABLE WIRES

AWG	Circuit Size	Amps
14	3	14
14	9	11
18	3	10
18	9	7
22	3	7
22	9	5

4.3 TEMPERATURE

Operating: - 55°C to + 105°C

5.0 PERFORMANCE

5.1 ELECTRICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
1	**Contact Resistance (Low Level)**	Mate connectors: apply a maximum voltage of **20** mV and a current of **20** mA. (Measurement locations in Section 7.0)	**10** milliohms MAXIMUM [initial]
2	**Dielectric Withstanding Voltage**	Mate connectors: apply a voltage of **2000** VAC for **1** minute between adjacent terminals and between terminals to ground.	No breakdown; current leakage < **500** mA
3	**Temperature Rise (via Current Cycling)**	Mate connectors, measuring the temperature rise at 60 minute intervals during **96** hours of steady state at rated current; followed by **240** hours of current cycling (**45** minutes ON and **15** minutes OFF per hour) with measurements made during last 5 minute period of each ON cycle; followed by **96** hours of steady state at rated current with measurements taken at 60 minute intervals.	Temperature rise: **+30**°C MAXIMUM

5.2 MECHANICAL REQUIREMENTS

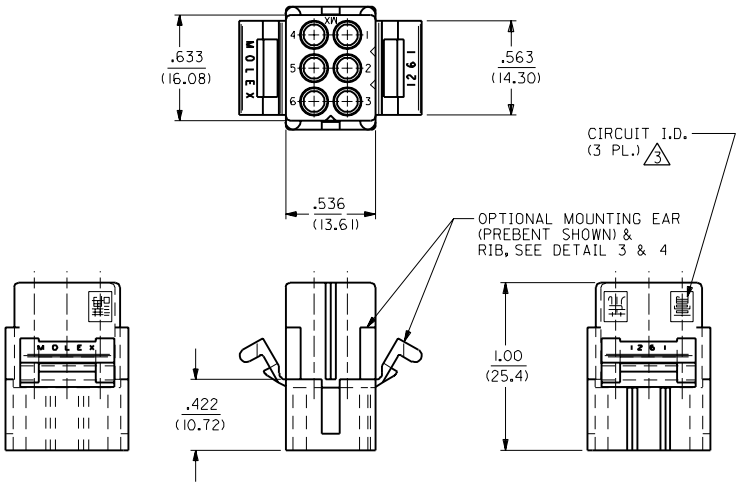
ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
4	**Connector Mate and Unmate Forces**	Mate and unmate connector (male to female) at a rate of **25 ± 6** mm (**1 ± ¼** inch) per minute for a total of 25 cycles. Initial mate forces to be measured. Unmate forces to be measured after 25 cycles.	**15.6** N (**3.5** lbf) MAXIMUM insertion force **4.4** N (**1** lbf) MINIMUM withdrawal force
5	**Terminal Retention Force (in Housing)**	Axial pullout force on the terminal in the housing at a rate of **25 ± 6** mm (**1 ± ¼** inch) per minute.	**89** N (**20** lbf) MINIMUM retention force
6	**Wire Pullout Force (Axial)**	Apply an axial pullout force on the wire at a rate of **25 ± 6** mm (**1 ± ¼** inch).	MINIMUM pullout forces: 14 AWG **178** N (**40** lbf) 16 AWG **156** N (**35** lbf) 18 AWG **133** N (**30** lbf) 20 AWG **89** N (**20** lbf) 22 AWG **62** N (**14** lbf) 24 AWG **36** N (**8** lbf)
7	**Terminal Insertion Force (into Housing)**	Apply an axial insertion force on the terminal at a rate of **25 ± 6** mm (**1 ± ¼** inch).	**22**N (**5** lbf) MAXIMUM insertion force

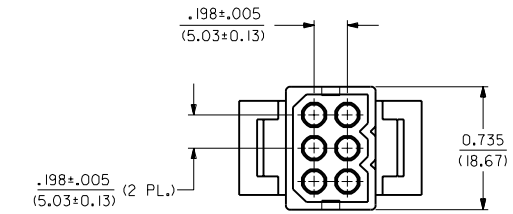
5.3 ENVIRONMENTAL REQUIREMENTS

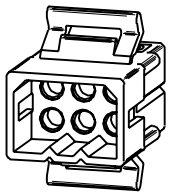
ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
8	**Thermal Cycling**	Mate connectors; expose to temperature cycling between **–25**°C and **70**°C for 500 cycles with a dwell time of 30 minutes at each extreme. Measurements to be taken initially and after every 100 cycles.	**10** milliohms MAXIMUM (change from initial) & Visual: No Damage

6.0 PACKAGING

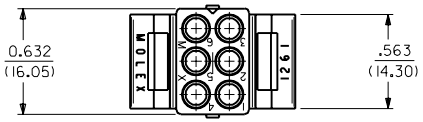
Parts shall be packaged to protect against damage during handling, transit and storage. See the appropriate sales drawings for additional information on packaging requirements.

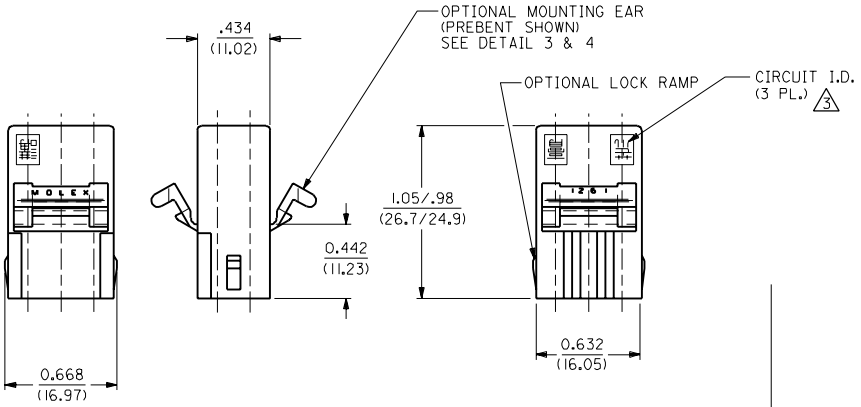


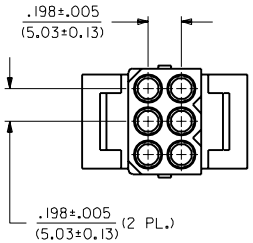


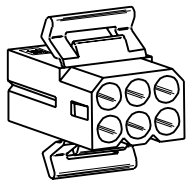


PLUG









RECEPTACLE

NEW	SH.	REV.	LTR.	REVISIONS
	2	X1		
	1	X1	V	REV'D. & REDRAWN PER ECR U9 1099 11/6/89 COMSTOCK
			W	CORRECTED DIM. ECN # U1 0808 4-19-91 RW
			X	REVISE PER ECR U1 1800 GNC 5/28/92 RW
			X1	REVISED UCR1998-0140 WANG 98-04-09

▽ = 0 ▼ = 0 REVISE ONLY ON CAD SYSTEM

DIMENSIONS SHOWN (METRIC) INCH

UNLESS OTHERWISE SPECIFIED TOLERANCES: ANGULAR ± DEC 2°

	INCH	METRIC
3 PLACE	± .007	---
2 PLACE	± .010	± 0.18
1 PLACE	---	± 0.25

DRAFT WHERE APPLICABLE MUST REMAIN WITHIN DIMENSIONS

DRWG. BY GNC | CHK'D. BY RW | APP'D. BY GWF | SCALE 2:1

TITLE: .093/(2.36) HOUSING, PLUG AND RECEPTACLE, 6 CKT, 2 ROW, .198/(5.03) CTRS.

molex MOLEX INCORPORATED LISLE,ILL. 60532 U.S.A. | SHEET NO. 1 of 2 | DATE 11/6/89

PART NO. SEE CHART | DRWG. NO. SD-1261-■

FILE NAME H1261X1 S04

THIS DRAWING CONTAINS INFORMATION THAT IS PROPRIETARY to MOLEX INC. AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION

DIV. CP | SIZE C

PLUG	
PART NO.	ENG. NO.
03-09-2061	1261-P ④
23-09-2061	1261-P-100
03-09-2062	1261-P1
23-09-2062	1261-P1-100
03-09-7061	1261-PBK ④
03-09-7062	1261-P1BK
27-09-2093	1261-P1-200

RECEPTACLE	
PART NO.	ENG. NO.
03-09-1061	1261-R
23-09-1061	1261-R-100
03-09-1062	1261-R1
23-09-1062	1261-R1-100
03-09-1063	1261-R2
23-09-1063	1261-R2-100
03-09-1064	1261-R3
27-09-1063	1261-R2-200
03-09-6064	1261-R3BK
03-09-6063	1261-R2BK
03-09-6062	1261-R1BK
03-09-6061	1261-RBK

LEGEND: PLUG

1261-P***-***

- P = PLUG
- BLANK = PLUG WITH PREBENT MOUNTING EARS
- 1 = PLUG WITHOUT MOUNTING EARS

COLOR: BLANK=NATURAL COLOR
AM=AMBER BK=BLACK BU=BLUE
BN=BROWN GY=GRAY GN=GREEN
OR=ORANGE RD=RED YW=YELLOW

MATERIAL: BLANK = NYLON 6/6, U.L. 94V-2
100 = POLYPROPYLENE, U.L. 94V-0
200 = NYLON 6/6, U.L. 94V-0, RED

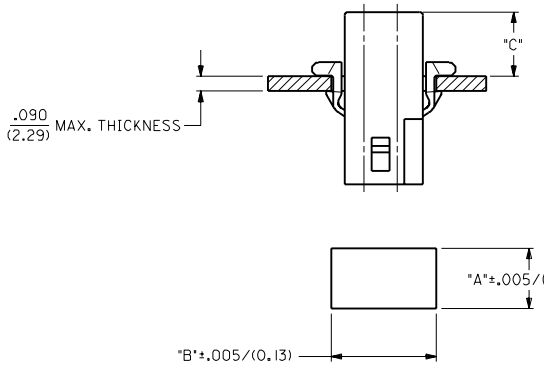
LEGEND: RECEPTACLE

1261-R***-***

- R = RECEPTACLE
- BLANK = WITH STD. MOUNTING EARS, WITH LOCK RAMPS
- 1 = WITH STD. MOUNTING EARS, WITHOUT LOCK RAMPS
- 2 = WITHOUT MOUNTING EARS, WITHOUT LOCK RAMPS
- 3 = WITHOUT MOUNTING EARS, WITH LOCK RAMPS
- 4 = WITH PREBENT MOUNTING EARS, WITH LOCK RAMPS
- 5 = WITH PREBENT MOUNTING EARS, WITHOUT LOCK RAMPS

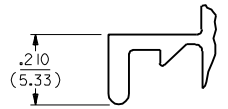
COLOR: BLANK=NATURAL COLOR
AM=AMBER BK=BLACK BU=BLUE
BN=BROWN GY=GRAY GN=GREEN
OR=ORANGE RD=RED YW=YELLOW

MATERIAL: BLANK = NYLON 6/6, U.L. 94V-2
100 = POLYPROPYLENE, U.L. 94V-0
200 = NYLON 6/6, U.L. 94V-0, RED

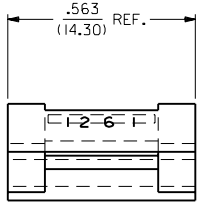


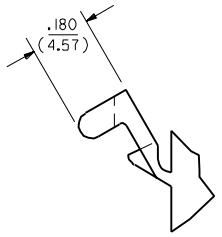
MOUNTING HOLE CUTOUT

HOUSING	DIM. "A"	DIM. "B"	DIM. "C" (STD. EAR)	DIM. "C" (PREBENT)
PLUG	.750/(19.05)	.695/(17.65)	.39/(9.9)	.40/(10.1)
RECEPTACLE	.718/(18.24)	.600/(15.24)	.40/(10.1)	.41/(10.3)



DETAIL 3
.093/(2.36) STANDARD MOUNTING EAR
(SCALE 4:1)





DETAIL 4
.093/(2.36)PREBENT MOUNTING EAR
(SCALE 4:1)

NOTES:

1. THESE PARTS COMPLY WITH MOLEX PRODUCT SPEC. 02-09.
2. HOUSINGS FOR USE WITH MOLEX .093/(2.36) PIN AND SOCKET TERMINALS.
3. CIRCUIT I.D. NUMBERS ON SIDE OF HOUSING APPEAR ON PARTS FROM TOOLS BUILT AFTER 9/3/91.
4. WHERE DENOTED IN CHART, TOOLS ARE BUILT WITH PREBENT MOUNTING EARS PER DETAIL 4 AND SUPERSEDE ALL TOOLS PREVIOUSLY BUILT WITH THE STANDARD MOUNTING EAR.

LTR.	REVISIONS	LTR.	REVISIONS
		X1	SEE SHEET 1
		X	SEE SHEET 1
		V	SEE SHEET 1

DIMENSIONS SHOWN (METRIC) INCH
UNLESS OTHERWISE SPECIFIED TOLERANCES: ANGULAR ± 2°

	INCH	METRIC
3 PLACE	± .007	---
2 PLACE	± .010	± 0.18
1 PLACE	---	± 0.25

DRAFT WHERE APPLICABLE MUST REMAIN WITHIN DIMENSIONS

DRWG. BY GK CHK'D. BY RW
APP'D. BY GWF SCALE 4 : 1

▽ = 0 ▼ = 0 REVISE ONLY ON CAD SYSTEM

TITLE: .093/(2.36) HOUSING, PLUG AND RECEPTACLE, 6 CKT. x 0.198/(5.03) CTRS.

MOLEX INCORPORATED LISLE,ILL. 60532 U.S.A.
SHEET NO. 2 DATE 11/10/89
PART NO. SEE CHART DRWG. NO. SD-1261-*
FILE NAME H1261X1 SOS

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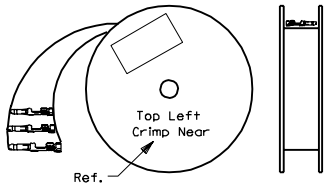
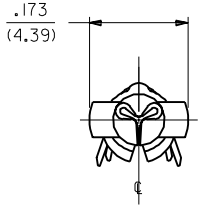
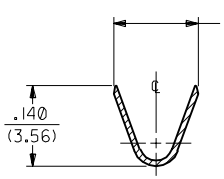
DIV. CP SIZE C

PART NO.	ENG. NO.
02-09-2118	1380-(P901)L
02-09-2116	1380-(P901)
02-09-2127	1380-(P901)I
02-09-2156	1380-(P914)L
02-09-2157	1380-(P914)
NOT TOOLED	1380-(563)L
02-09-6135	1380-(563)
02-09-6126	1380-(591)L
02-09-6125	1380-(591)
02-09-6124	1380-(558)L
02-09-6121	1380-(558)
02-09-6123	1380-(550)L
02-09-6122	1380-(550)
NOT TOOLED	1380-(603)L
02-09-6136	1380-(603)
02-09-2159	1380-(P914)A
02-09-2147	1380-(102)L
02-09-2148	1380-(102)
02-09-2119	1380-A(P901)L
02-09-2117	1380-A(P901)

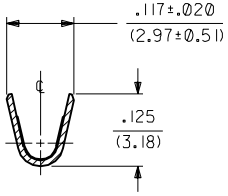


REWOUND CHAIN

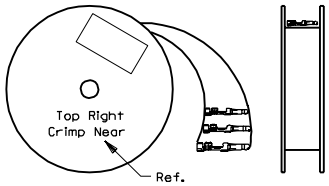




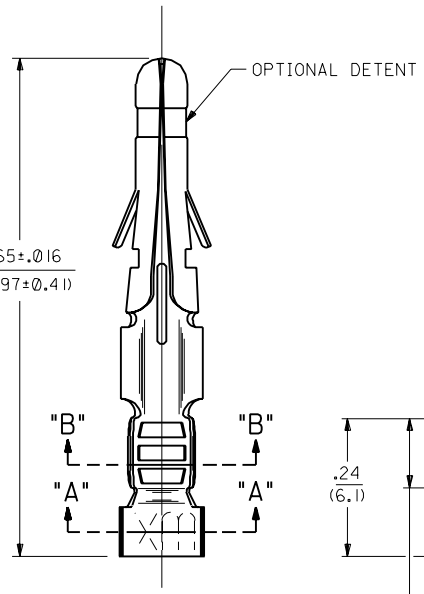
SECT. "A-A"

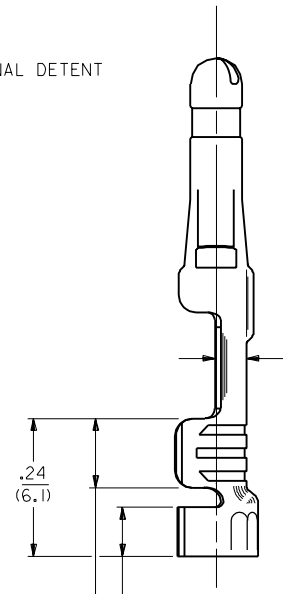


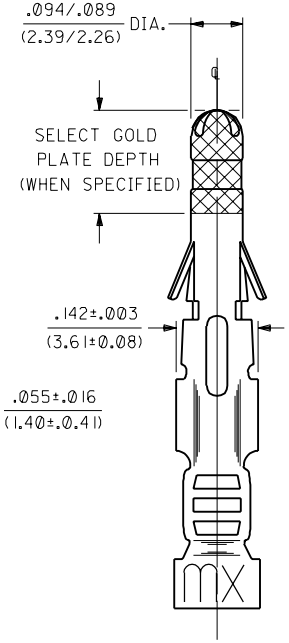
SECT. "B-B"



STANDARD CHAIN







LEGEND

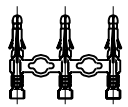
1380-*(****)*

- OPTIONAL DETENT: BLANK = WITH DETENT; A = WITHOUT DETENT
- FORM: BLANK = STD. CHAIN; A = REWOUND CHAIN; L = LOOSE; I = STD. CHAIN WITH INTERLEAF PAPER
- FINISH CODE
- P = PREPLATE; BLANK = POSTPLATE

NOTES:

1. MATERIAL: BRASS, ALLOY #C26000
2. FINISH:
   - 901 HOT TIN DIP .000020/(0.00051) MIN.
   - 914 HOT TIN-LEAD DIP .000040/(0.00102) MIN.
   - 102 TIN PLATE .000200/(0.00508) MIN. OVER .000100/(0.00254) MIN. COPPER OVERALL.
   - 558 SELECT GOLD PLATE .000030/(0.00076) MIN. IN CONTACT AREA, OVER .000050/(0.00127) MIN. NICKEL OVERALL WITH .000010/(0.00025) MAX. GOLD FLASH OVERALL.
   - 591 SELECT GOLD PLATE .000050/(0.00127) MIN. IN CONTACT AREA, OVER .000050/(0.00127) MIN. NICKEL OVERALL WITH .000010/(0.00025) MAX. GOLD FLASH OVERALL.
   - 550 SELECT GOLD PLATE .000015/(0.00038) MIN. IN CONTACT AREA, OVER .000030/(0.00076) MIN. NICKEL OVERALL WITH .000010/(0.00025) MAX. GOLD FLASH OVERALL.
   - 563 SELECT GOLD PLATE .000030/(0.00076) MIN. IN CONTACT AREA, .000100/(0.00254) MIN. TIN-LEAD IN CRIMP AREA OVER .000050/(0.00127) MIN. NICKEL OVERALL.
   - 603 SELECT GOLD PLATE .000030/(0.00076) MIN. IN CONTACT AREA, .000100/(0.00254) MIN. TIN-LEAD IN CRIMP AREA OVER .000050/(0.00127) MIN. NICKEL OVERALL WITH .000010/(0.00025) MAX. SELECT GOLD FLASH.
3. THIS PART CONFORMS TO PRODUCT SPECIFICATION 02-09.
4. TERMINAL FOR USE WITH .093/(2.36) SERIES HOUSINGS AND WILL ACCEPT 18 THRU 22 AWG
5. INSERTION FORCE: 3.5 LBS. MAX. WHEN TERMINAL IS INSERTED INTO AN .093 SERIES HOUSING.
6. TERMINAL RETENTION: 20 LBS. MIN. FROM HOUSING.

CHAIN FORM
FULL SCALE



MFG.	SH.	REV.	LTR.	REVISIONS
		BT		ADD -(P901)I ECN #2001-0905 4-4-01 BW
		BS1		REVISED ECN# UCR1999-0518 STAMBAUGH 99-2-9
		BS		CARRIER CUTOFF ECR #UI0223 1-4-91 RW
		BR		ADDED OPT. DETENT ECR U8 1706 GEP 7-15-88 RW
		BP		REV. & REDRAWN ECR 10480 GEP 11-6-87 RW

DIMENSIONS SHOWN (METRIC) INCH
UNLESS OTHERWISE SPECIFIED TOLERANCES: ANGULAR ± 1/2°

	INCH	METRIC
3 PLACE	± .010	---
2 PLACE	± .014	± 0.25
1 PLACE	---	± 0.35

DRAFT WHERE APPLICABLE MUST REMAIN WITHIN DIMENSIONS

▽ = 0 ▼ = 0 REVISE ONLY ON CAD SYSTEM

TITLE: CRIMP TERMINAL, MALE .093/(2.36) DIA. FOR 18 THRU 22 AWG WIRE

MOLEX INCORPORATED LISLE, ILL. 60532 U.S.A.

SHEET NO. 1 OF 1 | DATE 11/6/87

PART NO. SEE CHART | DRWG. NO. SD-1380-*

DRWG. BY	CHK'D. BY	FILE NAME
GEP	RW	SD1380X1
APP'D. BY	SCALE	DIV.
RAS	6 : 1	CP

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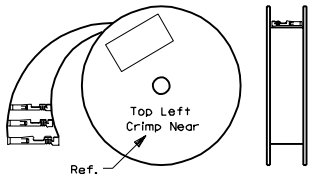
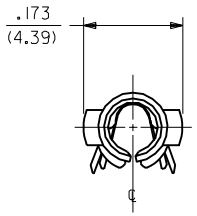
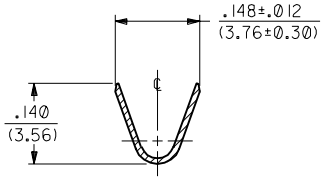
SIZE C

PART NO.	ENG. NO.
02-09-1119	1381-A(P901)L
02-09-1117	1381-A(P901)
02-09-1115	1381-A(P901)1

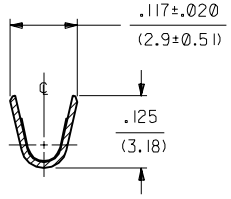


REWOUND CHAIN





SECT. "A-A"



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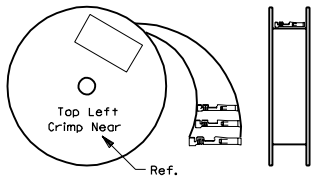
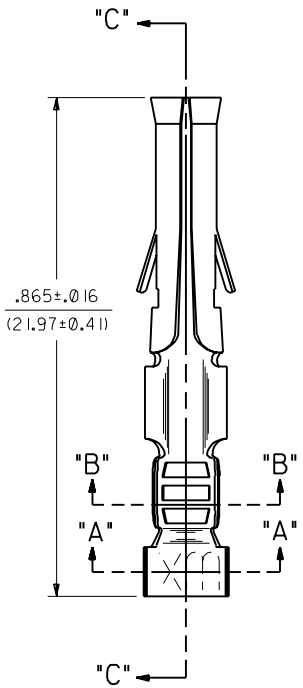
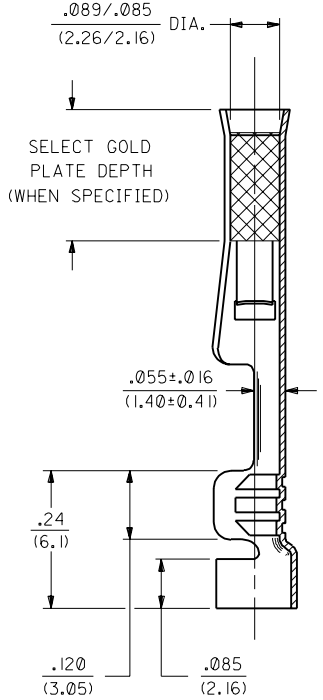
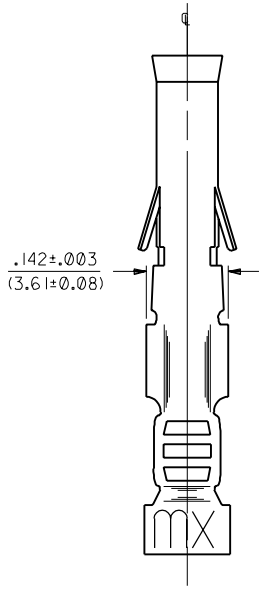


STANDARD CHAIN





SECT. "C-C"



LEGEND

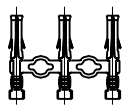
1381-A(****)*

- P = PREPLATE, BLANK = POSTPLATE
- FINISH CODE
- FORM
  - BLANK = STD. CHAIN
  - A = REWOUND CHAIN
  - 1 = STD. CHAIN WITH INTERLEAF PAPER
  - L = LOOSE

NOTES:

1. MATERIAL: BRASS, ALLOY #26000
2. FINISH:
   - 901 HOT TIN DIP .000020/(0.00051) MIN.
   - 914 HOT TIN-LEAD DIP .000040/(0.00102) MIN.
   - 102 TIN PLATE .000200/(0.00508) MIN. OVER .000100/(0.00254) MIN. COPPER OVERALL.
   - 575 SELECT GOLD PLATE .000050/(0.00127) MIN. IN CONTACT AREA, .000050/(0.00127) MIN. TIN-LEAD IN CRIMP AREA OVER .000050/(0.00127) MIN. NICKEL OVERALL.
   - 591 SELECT GOLD PLATE .000050/(0.00127) MIN. IN CONTACT AREA, OVER .000050/(0.00127) MIN. NICKEL OVERALL WITH .000010/(0.00025) MAX. GOLD FLASH OVERALL.
   - 550 SELECT GOLD PLATE .000015/(0.00038) MIN. IN CONTACT AREA, OVER .000030/(0.00076) MIN. NICKEL OVERALL WITH .000010/(0.00025) MAX. GOLD FLASH OVERALL.
   - 603 SELECT GOLD PLATE .000030/(0.00076) MIN. IN CONTACT AREA, .000100/(0.00254) MIN. TIN-LEAD IN CRIMP AREA OVER .000050/(0.00127) MIN. NICKEL OVERALL WITH .000010/(0.000025) MAX. SELECT GOLD FLASH.
3. THIS PART CONFORMS TO PRODUCT SPECIFICATION 02-09.
4. TERMINAL FOR USE WITH .093/(2.36) SERIES HOUSINGS AND WILL ACCEPT 18-22 AWG WIRE
5. INSERTION FORCE: 3.5 LBS. MAX. WHEN TERMINAL IS INSERTED INTO AN .093 SERIES HOUSING.
6. TERMINAL RETENTION: 20 LBS. MIN. FROM HOUSING.

CHAIN FORM
FULL SCALE



MFG.	SH.	REV.	LTR.	REVISIONS
		BV		ADD -A(P901)1 ECN#2001-0905 4/5/01 BW
		BU		OBS. VER'S. PER ECR U6 0543 GVC 11/2/95 RW
		BT		REVISE PER ECR U5 0799 GVC 2/10/95 RW
		BS		CARRIER CUTOFF ECR #U10223 1-4-91 RW
		BR		FINAL REL. (P575) ERO 28218 GEP 4-12-89 RW
		BP		REV. & REDRAWN ECR 10480 GEP 11-6-87 RW

DIMENSIONS SHOWN (METRIC) INCH
UNLESS OTHERWISE SPECIFIED TOLERANCES: ANGULAR ± 1/2°

	INCH	METRIC
3 PLACE	± .010	---
2 PLACE	± .014	± 0.25
1 PLACE	---	± 0.35

DRAFT WHERE APPLICABLE MUST REMAIN WITHIN DIMENSIONS

▽ = 0 ▼ = 0 REVISE ONLY ON CAD SYSTEM

TITLE: CRIMP TERM., FEMALE .093/(2.36) DIA. FOR 18 THRU 22 AWG WIRE

MOLEX INCORPORATED, LISLE, ILL. 60532 U.S.A.

SHEET NO.: 1 OF 1 | DATE: 11/6/87

PART NO.: SEE CHART | DRWG. NO.: SD-1381-*

DRWG. BY	CHK'D. BY	SCALE
GEP	RW	6 : 1
APP'D. BY: RAS		

FILE NAME: SD1381X1.DGN

THIS DRAWING CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX INC. AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION.

DIV.: CP | SIZE: C